

CLAIMS

What is claimed is:

1. A computer controlled display device, comprising:
 - a flat panel display having an input for receiving display data;
 - a base housing a computer; and
 - a moveable assembly extending from said flat panel display to said base, said moveable assembly having a cross-sectional area that is less than a cross-sectional area of a display structure of said flat panel display, wherein said moveable assembly is articulated to provide at least three degrees of freedom for said flat panel display relative to said base.
2. The computer controlled display device of claim 1, wherein said moveable assembly comprises:
 - at least one ball and socket joint disposed near said base; and
 - a gooseneck shaft disposed within said at least one ball and socket joint.
3. The computer controlled display device of claim 2, wherein said moveable assembly has one of a data cable, power cable, tension mechanism, and an anti-torsion mechanism.
4. The computer controlled display device of claim 2, wherein a frictional contact between each ball and socket allows said moveable assembly to be selectively fixed in a position.
5. The computer controlled display device of claim 2, wherein said at least one ball and socket joint is comprised of a material selected from the group consisting of a metal, a metal alloy, a ceramic, a plastic, and combinations thereof.
6. The computer controlled display device of claim 5, wherein a plurality of ball and socket joints extend from said base to said flat panel display.

7. The computer controlled display device of claim 1, wherein said moveable assembly comprises at least one U-joint disposed near said base.
8. The computer controlled display device of claim 7, wherein said at least one U-joint has a first joint member and a second joint member.
9. The computer controlled display device of claim 8, wherein said first joint member and said second joint member have interlocking teeth.
10. The computer controlled display device of claim 8, wherein said first joint member and said second joint member become fixed in a selected position through frictional contact.
11. The computer controlled display device of claim 10, wherein a plurality of U-joints extend from said base to said flat panel display.
12. The computer controlled display device of claim 11, wherein a tension cable is disposed within said moveable assembly.
13. The computer controlled display device of claim 12, further comprising an actuation device operatively coupled to said tension cable, said actuation device suspending a movement of said moveable assembly when a force is applied by said actuation device and permitting said movement when said force is released.
14. The computer controlled display device of claim 13, wherein said force is applied to said tension cable to engage said teeth of said first joint member and said second joint member.

15. The computer controlled display device of claim 13, wherein said force is released from said tension cable to separate said teeth of said first joint member and said second joint member.

16. The computer controlled display device of claim 13, wherein said force is torque.

17. The computer controlled display device of claim 1, wherein said moveable assembly comprises:

- a proximal end and a distal end;
- at least one link disposed near said base; and
- a shape-memory metal shaft disposed within said at least one link.

18. The computer controlled display device of claim 17, wherein said shape-memory metal shaft comprises nickel-titanium.

19. The computer controlled display device of claim 17, wherein said moveable assembly has one of a data cable, power cable, tension mechanism, and an anti-torsion mechanism.

20. The computer controlled display device of claim 17, wherein said shape-memory metal shaft is looped at least once from said proximal end to said distal end.

21. The computer controlled display device of claim 17, further comprising a ferrule disposed over said shape-memory metal shaft near said proximal end, wherein said ferrule maintains a tension force applied to said shape-memory metal shaft.

22. The computer controlled display device of claim 17, further comprising a ferrule disposed over said shape-memory metal shaft near said distal end, wherein said ferrule maintains a tension force applied to said shape-memory metal shaft.

23. The computer controlled display device of claim 1, wherein said moveable assembly comprises at least one pivot joint disposed near said base.

24. The computer controlled display device of claim 23, wherein said at least one pivot joint has a knuckle and at least one friction plate disposed on said knuckle.

25. The computer controlled display device of claim 24, wherein a plurality of frictions plates are disposed between a first pivot joint and a second pivot joint.

26. The computer controlled display device of claim 25, wherein a tension cable is disposed within said moveable assembly.

27. The computer controlled display device of claim 23, wherein said moveable assembly has one of a data cable, power cable, tension mechanism, and an anti-torsion mechanism.

28. The computer controlled display device of claim 26, further comprising an actuation device operatively coupled to said tension cable, said actuation device suspending a movement of said moveable assembly when a force is applied by said actuation device and permitting said movement when said force is released.

29 The computer controlled display device of claim 28, wherein said force is applied to said tension cable to engage said plurality of friction plates with said first and second pivot joints.

30. The computer controlled display device of claim 28, wherein said force is released from said tension cable to separate said plurality of friction plates from said first and second pivot joints.

31. The computer controlled display device of claim 28, wherein said force is torque.
32. The computer controlled display device of claim 1, wherein said moveable assembly comprises at least one ball joint disposed near said base.
33. The computer controlled display device of claim 32, wherein said at least one ball joint comprises:
- a substantially spherical ball;
 - a stem extending from said substantially spherical ball; and
 - a washer disposed near said stem, said washer having brake pad.
34. The computer controlled display device of claim 33, wherein said at least one ball joint further comprises a tension cable disposed within said at least one ball joint, wherein when said tension cable is tensioned, said washers force the brake pads to engage an inner surface of said substantially spherical ball.
35. The computer controlled display device of claim 34, wherein said washer comprises a spring washer.
36. The computer controlled display device of claim 34, wherein said tension cable is coupled to an actuator to apply and to release a tension to said tension cable.
37. The computer controlled display device of claim 32, wherein said moveable assembly has one of a data cable, power cable, tension mechanism, and an anti-torsion mechanism.
38. The computer controlled display device of claim 34, further comprising an actuation device operatively coupled to said tension cable, said actuation device

suspending a movement of said moveable assembly when a force is applied by said actuation device and permitting said movement when said force is released.

39. The computer controlled display device of claim 38, wherein said force is applied to said tension cable to engage said brake pads to said inner surface of said substantially spherical ball.

40. The computer controlled display device of claim 38, wherein said force is released from said tension cable to separate said brake pads from said inner surface of said substantially spherical ball.

41. The computer controlled display device of claim 34, wherein said force is torque.

42. The computer controlled device of claim 1, wherein said moveable assembly comprises:

- at least one ball and socket disposed near said base;
- a first band looped around a ball portion of said ball; and
- a second band looped around said ball portion perpendicular to said first band.

43. The computer controlled device of claim 42, further comprising:

- a first washer coupled to said first band; and
- a second washer coupled to said second band, wherein said first band translates around said first washer and said second band translates around said second washer.

44. The computer controlled device of claim 43, further comprising a second ball and socket coupled to said at least one ball and socket by engaging said first band and said second band, wherein second ball and socket may rotate about said at least one ball and socket.

45. The computer controlled device of claim 44, wherein a rotation of said second ball and socket perpendicular to said first band translates said second band around said at least one ball and said second washer.

46. The computer controlled device of claim 44, wherein a rotation of said second ball and socket perpendicular to said second band translates said first band around said at least one ball and said first washer.

47. The computer controlled device of claim 44, wherein a combination of rotation of said second ball and socket perpendicular to said first band and to said second band provides a rotational movement that is the equivalent of a spherical joint.

48. The computer controlled display device of claim 42, wherein said moveable assembly has one of a data cable, power cable, tension mechanism, and an anti-torsion mechanism.